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CIVIL — CONCRETE — MATERIALS

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April 8, 1986

DSS Contract Serial No.: EMR-[redacted]-84-0065
File No.: 23440-4-9337.

Air Void Parameters of Hardened Concrete.

| Specimen | Air Content % | Specific Surface $mm^{-1}$ | Spacing Factor mm | Voids per mm. |
|---|---|---|---|---|
| SL2A-5 | 11.5 | 16.1 | 0.007 | 0.463 |
| SL4A-5 | 8.8 | 26.7 | 0.083 | 0.586 |
| SL5A-5 | 6.6 | 25.9 | 0.116 | 0.427 |
| SL7A-5 | 8.7 | 22.2 | 0.114 | 0.483 |
| SL3A-6 | 9.9 | 22.3 | 0.078 | 0.552 |
| SL6A-6 | 6.3 | 26.7 | 0.126 | 0.419 |
| SL8A-6 | 7.0 | 32.4 | 0.087 | 0.571 |

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9 pp.

MICROMEDIA

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Date: APR. 8, 1986
File No: DSS1986.1
Report No: 1

## REPORT OF TEST

### MICROSCOPIC DETERMINATION OF PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample Identification: CANMET CORE #SL2A-5

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1944

Total number of stops observed..... 1552

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED PASTE CONTENTS

| Design Strength (psi) | 3,000 | 4,000 | 5,000 |
|---|---|---|---|
| Paste Content (%) | 26 | 30 | 34 |
| Air-Void Content (%) | 11.5 | 11.5 | 11.5 |
| Specific Surface ($mm^{-1}$) | 16.1 | 16.1 | 16.1 |
| Spacing Factor (mm) | 0.140 | 0.162 | 0.183 |

PARAMETERS OF AIR-VOID SYSTEM BASED ON PATSE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%).....11.5

Specific Surface ($mm^{-1}$)..... 16.1

Spacing Factor (mm)..... 0.007

Air/Paste Ratio ..... 8.52

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Date: APR. 8, 1986
File No: DSS1986.1
Report No: 2

## REPORT OF TEST

### MICROSCOPIC DETERMINATION OF PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample Identification: CANMET CORE #SL4A-5

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1852

Total number of stops observed..... 1479

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED PASTE CONTENTS

| Design Strength (psi) | 3,000 | 4,000 | 5,000 |
|---|---|---|---|
| Paste Content (%) | 26 | 30 | 34 |
| Air-Void Content (%) | 8.8 | 8.8 | 8.8 |
| Specific Surface ($mm^{-1}$) | 26.7 | 26.7 | 26.7 |
| Spacing Factor (mm) | 0.111 | 0.128 | 0.145 |

PARAMETERS OF AIR-VOID SYSTEM BASED ON PATSE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 8.8

Specific Surface ($mm^{-1}$)..... 26.7

Spacing Factor (mm)..... 0.083

Air/Paste Ratio ..... 0.45

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Date: APR. 8, 1986
File No: DSS1986.1
Report No: 3

## REPORT OF TEST

### MICROSCOPIC DETERMINATION OF PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample Identification: CANMET CORE #SL7A-5

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1972

Total number of stops observed..... 1574

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED PASTE CONTENTS

| Design Strength (psi) | 3,000 | 4,000 | 5,000 |
|---|---|---|---|
| Paste Content (%) | 26 | 30 | 34 |
| Air-Void Content (%) | 8.7 | 8.7 | 8.7 |
| Specific Surface ($mm^{-1}$) | 22.2 | 22.2 | 22.2 |
| Spacing Factor (mm) | 0.135 | 0.155 | 0.176 |

PARAMETERS OF AIR-VOID SYSTEM BASED ON PATSE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 8.7

Specific Surface ($mm^{-1}$)..... 22.2

Spacing Factor (mm)..... 0.114

Air/Paste Ratio ..... 0.39

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Date: APR. 8, 1986
File No: DSS1986.1
Report No: 4

## REPORT OF TEST

### MICROSCOPIC DETERMINATION OF PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample Identification: CANMET CORE #SL3A-6

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1935

Total number of stops observed..... 1545

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED PASTE CONTENTS

| Design Strength (psi) | 3,000 | 4,000 | 5,000 |
|---|---|---|---|
| Paste Content (%) | 26 | 30 | 34 |
| Air-Void Content (%) | 9.9 | 9.9 | 9.9 |
| Specific Surface ($mm^{-1}$) | 22.3 | 22.3 | 22.3 |
| Spacing Factor (mm) | 0.118 | 0.136 | 0.154 |

PARAMETERS OF AIR-VOID SYSTEM BASED ON PATSE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 9.9

Specific Surface ($mm^{-1}$)..... 22.3

Spacing Factor (mm)..... 0.078

Air/Paste Ratio ..... 0.58

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Date: APR. 8, 1986
File No: DSS1986.1
Report No: 5

## REPORT OF TEST

### MICROSCOPIC DETERMINATION OF PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample Identification: CANMET CORE #SL6A-6

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1999

Total number of stops observed..... 1595

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED PASTE CONTENTS

| Design Strength (psi) | 3,000 | 4,000 | 5,000 |
|---|---|---|---|
| Paste Content (%) | 26 | 30 | 34 |
| Air-Void Content (%) | 6.3 | 6.3 | 6.3 |
| Specific Surface ($mm^{-1}$) | 26.7 | 26.7 | 26.7 |
| Spacing Factor (mm) | 0.155 | 0.170 | 0.180 |

PARAMETERS OF AIR-VOID SYSTEM BASED ON PATSE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 6.3

Specific Surface ($mm^{-1}$)..... 26.7

Spacing Factor (mm)..... 0.126

Air/Paste Ratio ..... 0.30

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Date: APR. 8, 1986
File No: DSS1986.1
Report No: 6

## REPORT OF TEST

### MICROSCOPIC DETERMINATION OF PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample Identification: CANMET CORE #SL8A-6

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1974

Total number of stops observed..... 1575

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED PASTE CONTENTS

| Design Strength (psi) | 3,000 | 4,000 | 5,000 |
|---|---|---|---|
| Paste Content (%) | 26 | 30 | 34 |
| Air-Void Content (%) | 7.0 | 7.0 | 7.0 |
| Specific Surface ($mm^{-1}$) | 32.4 | 32.4 | 32.4 |
| Spacing Factor (mm) | 0.114 | 0.131 | 0.140 |

PARAMETERS OF AIR-VOID SYSTEM BASED ON PATSE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 7.0

Specific Surface ($mm^{-1}$)..... 32.4

Spacing Factor (mm)..... 0.087

Air/Paste Ratio ..... 0.35

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Report No: 7

## REPORT OF TEST

### MICROSCOPIC DETERMINATION OF PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample Identification: CANMET CORE #SL5A-5

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1996

Total number of stops observed..... 1593

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED PASTE CONTENTS

| Design Strength (psi) | 3,000 | 4,000 | 5,000 |
|---|---|---|---|
| Paste Content (%) | 26 | 30 | 34 |
| Air-Void Content (%) | 6.6 | 6.6 | 6.6 |
| Specific Surface ($mm^{-1}$) | 25.9 | 25.9 | 25.9 |
| Spacing Factor (mm) | 0.152 | 0.171 | 0.181 |

PARAMETERS OF AIR-VOID SYSTEM BASED ON PATSE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 6.6

Specific Surface ($mm^{-1}$)..... 25.9

Spacing Factor (mm)..... 0.116

Air/Paste Ratio ..... 0.33

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